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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,900	12/22/2000	Rao Annapragada	LAM1P157/P0718	1910
22434	7590	04/02/2004	EXAMINER	
BEYER WEAVER & THOMAS LLP			CROWELL, ANNA M	
P.O. BOX 778				
BERKELEY, CA 94704-0778			ART UNIT	PAPER NUMBER

1763

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/746,900

Applicant(s)

ANNAPRAGADA ET AL.

Examiner

Michelle Crowell

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-5, 8-9, 13-14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz et al. (U.S. 5,534,751) in view of Li et al. (U.S. 6,105,588).

Referring to Figure 1, column 4, line 48 – column 5, line 15, and column 6, lines 16-29, Lenz et al. discloses a plasma etching apparatus comprising a plasma chamber 12, a ring assembly 30 (plasma confinement device, plasma rings), a gas inlet (col. 5, lines 1-3), an upper electrode 14, a lower electrode 13 (chuck), and an outlet (col. 5, lines 4-5, exhaust system). The lower electrode 13 supports a workpiece 16 (substrate) to be etched. The ring assembly 30

includes a stack of spaced apart circular plasma rings 32. In one experiment, the pressure inside the chamber 12 is 50 mTorr (col. 7, lines 21-25).

Regarding claim 3, the stack is considered a matter of intended use since an article worked upon in an etching apparatus has no significance in determining patentability of apparatus claims. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim.” Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, “the inclusion of material or **article worked** upon by a structure being claimed does not impart patentability to the claims.” In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Lenz et al. fails to teach a gas source comprising a fluorine containing gas source; an ammonia containing gas source.

Referring to Figure 1 and column 4, lines 26-36, Li et al. teaches an apparatus for processing a substrate comprising a fluorine containing gas source 12 and an ammonia containing gas source 12. It is well known to one of ordinary skill in the art to provide a fluorine containing gas source and an ammonia containing gas source to an apparatus in order to perform the desired process. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the apparatus of Lenz et al. with a fluorine containing gas source and an ammonia containing gas source as taught by Li et al. in order to perform the desired process.

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4. Claims 6, 7, and 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz et al. (U.S. 5,534,751) in view of Li et al. (U.S. 6,105,588) as applied to claims 1-5, 8-9, 13-14, and 19 above, and further in view of Westendorp et al. (U.S. 5,565,036).

The teachings of Lenz et al. in view of Li et al. have been discussed above.

Lenz in view of Li et al. fails to teach the electrodes spaced apart less than 2 cm.

Referring to column 6, lines 3-7, lines 51-54, Westendorp et al. teaches that it is known for the upper electrode 12 and the lower electrode 14 to be spaced apart a distance less than one centimeter (less than 2 cm). High processing rates result from a small electrode spacing. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to space the electrodes of Lenz et al. in view of Li et al. apart as taught by Westendorp et al. When electrodes are spaced apart less than one centimeter, high processing rates result.

5. Claims 6, 7, and 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz et al. (U.S. 5,534,751) in view of Li et al. (U.S. 6,105,588) as applied to claims 1-5, 8-9, 13-14, and 19 above, and further in view of Ishida et al. (Japanese Patent Publication 05-234594).

The teachings of Lenz et al. in view of Li et al. are discussed above.

Lenz et al. in view of Li et al. fails to teach the electrodes spaced apart less than 2 cm.

Referring to column 6, lines 3-7, lines 51-54, Ishida et al. teaches that it is known for the upper electrode 12 and the lower electrode 14 to be spaced apart a distance between 1-15 centimeters. Etching rate uniformity is improved based on the electrode spacing. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to space the

electrodes of Lenz et al. in view of Li et al. apart as taught by Ishida et al. Etching rate uniformity is improved based on the electrode spacing.

Response to Arguments

6. Applicant's arguments filed February 19, 2003 have been fully considered but they are not persuasive.

Applicant has argued that that Examiner failed to point out anything in Lenz or Li that teaches or suggests that a chemistry for stripping a photoresist would be useful for etching a substrate.

However, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). In this case, the intended operation for the claimed apparatus is etching; yet, an etching process is of no patentable significance in apparatus claims. Furthermore, a recitation of the intended use (etching) of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Therefore, the apparatus of Lenz et al. teaches an etching apparatus, the Li et al. reference simply teaches the fluorine and ammonia gas sources, and the combination of Lenz et al. in view of Li et al. teaches an etching apparatus using fluorine and ammonia gas sources for a desired process. Additionally, it should be noted that both stripping and etching are considered analogous art, since they are both removal processes.

Applicant has argued that claim 14 recites that the exhaust system is able to maintain a pressure below 300 mTorr with the chamber wall; however the examiner failed to point out anything in the cited references that discloses this feature.

In column 7, lines 21-25, Lenz et al. discloses that the pressure in chamber 12 is 50 mTorr, and since 50 mTorr is below 300 mTorr, Lenz et al. satisfies the claimed requirement.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (571) 272-1432. The examiner can normally be reached on M-F (9:00 - 5:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMC *AME*
March 30, 2004

P. Hanson
Primary Examiner
AU 1763